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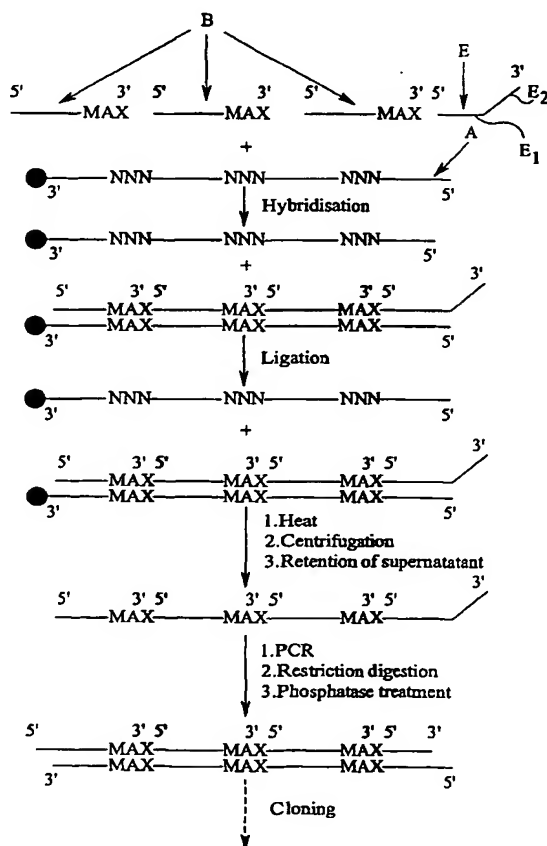
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(54) Title: METHODS OF PRODUCING DNA AND PROTEIN LIBRARIES



(57) **Abstract:** The present invention provides a method of producing a DNA library comprising a plurality of DNA sequences of interest, where each DNA sequence of interest has at least two predetermined positions, with at each predetermined position a codon (MAX) selected from a defined group for that position, the codons within a group coding for different amino acids. The method comprising the steps of: - (i) contacting so as to effect hybridisation (a) template DNA (A) comprising said at least two predetermined positions, said template DNA being fully randomised at said at least two predetermined positions (NNN), (b) for each predetermined position, a selection oligonucleotide pool, each selection oligonucleotide (B) within each pool comprising a codon (MAX) selected from the defined group for that predetermined position, and (c) at least one additional oligonucleotide sequence (E) comprising a region (E<sub>2</sub>) which is non-hybridisable to the template DNA, (ii) ligating the hybridised DNA sequences (B, E), (iii) denaturing the product of step (ii) so as to give a mixed population of said template DNA (A) and said DNA sequences of interest, and (iv) selectively amplifying the DNA sequences of interest. The additional oligonucleotide sequence (E) of step (i) is selected such that after step (ii) the non-hybridisable region (E<sub>2</sub>) is located externally of the template DNA (A). The invention also provides protein and DNA libraries which can be produced by the method of the invention.